TEST REPORT

of

FCC Part 15 Subpart C §15.247

FCC ID: RVBXSC100

Equipment Under Test	:	Xelfie
Model Name	:	XSC100
Applicant	:	Chois Technology Co., Ltd.
Manufacturer	:	Chois Technology Co., Ltd.
Date of Test(s)	:	2014.06.05 ~ 2014.07.02
Date of Issue	:	2014.07.02

In the configuration tested, the EUT complied with the standards specified above.

Tested By: **Youngmin Park** **Date:** **2014.07.02**

Approved By: **Logan Lee** **Date:** **2014.07.02**

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
- Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 435-837

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx.

Phone No. : + 82 31 688 0901
Fax No. : + 82 31 688 0921

1.2. Details of Applicant

Applicant : Chois Technology Co., Ltd.
Address : #902, ACE HIGH-END TOWER 2, 61, Digital-ro 26-gil, Guro-gu, Seoul, 152-724 Korea
Contact Person : Nam, Sang-hwan
Phone No. : +82 2 867 7220

1.3. Description of EUT

Kind of Product	Xelfie
Model Name	XSC100
Power Supply	DC 3 V
Frequency Range	2 402 ㎒ ~ 2 480 ㎒
Modulation Technique	GFSK
Number of Channels	40
Channel separation	2 ㎒
Antenna Type	Pattern Antenna
Antenna Gain	-5.35 ㏈i

1.4. Declaration by the manufacturer

- This product is applied for only Bluetooth LE
- The EUT does not do anything at charging mode. Therefore, AC conducted emission test is not necessary

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal Date	Cal Interval	Cal Due.
Signal Generator	Agilent	E8257D	MY51501169	Jul. 23, 2013	Annual	Jul. 23, 2014
Spectrum Analyzer	Agilent	N9030A	US51350132	Oct. 08, 2013	Annual	Oct. 08, 2014
Attenuator	Mini-Circuits	BW-N20W5+	0950-4	Jan. 08, 2014	Annual	Jan. 08, 2015
High Pass Filter	Wainwright	H03G12G3	0002DC0049	Jan. 08, 2014	Annual	Jan. 08, 2015
High Pass Filter	Wainwright	WHK7.5/26.5G-6SS	11	Jun. 10, 2014	Annual	Jun. 10, 2015
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	Jun. 10, 2014	Annual	Jun. 10, 2015
Power Sensor	R&S	NRP-Z81	100669	Mar. 19, 2014	Annual	Mar. 19, 2015
DC Power Supply	Agilent	U8002A	MY48490027	Jan. 03, 2014	Annual	Jan. 03, 2015
Preamplifier	H.P.	8447D	2944A07087	Jan. 06, 2014	Annual	Jan. 06, 2015
Preamplifier	R&S	SCU-18	10117	Jan. 14, 2014	Annual	Jan. 14, 2015
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Apr. 28, 2014	Annual	Apr. 28, 2015
Test Receiver	R&S	ESU26	100109	Mar. 04, 2014	Annual	Mar. 04, 2015
Loop Antenna	R&S	HFH2-Z2	100118	Jul. 12, 2013	Biennial	Jul. 12, 2015
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	396	Jun. 07, 2013	Biennial	Jun. 07, 2015
Horn Antenna	R&S	HF906	100326	Dec. 10, 2013	Biennial	Dec. 10, 2015
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170431	May 15, 2014	Biennial	May 15, 2016
Antenna Master	INNCO	MM4000	N/A	N.C.R.	N/A	N.C.R.
Turn Table	INNCO	DS 1200S	N/A	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.4 m)	N/A	N.C.R.	N/A	N.C.R.

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part15 Subpart C § 15.247		
Section	**Test Item**	**Result**
15.205(a) 15.209 15.247(d)	Transmitter Radiated Spurious Emissions Conducted Spurious Emission	Complied
15.247(a)(2)	6 dB Bandwidth	Complied
15.247(b)(3)	Maximum Peak Conducted Output Power	Complied
15.247(e)	Power Spectral Density	Complied

1.7. Test Procedure(s)

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 ㎑ to 40 ㎓ (ANSI C63.4-2003) and the guidance provided in KDB 558074_v03r02 were used in the measurement of the DUT.

1.8. Sample calculation

Where relevant, the following sample calculation is provided:

1.8.1. Conducted test

Offset value (㏈) = Attenuator (㏈) + Cable loss (㏈)

1.8.2. Radiation test

Field strength level (㏈㎶/m) = Measured level (㏈㎶) + Antenna factor (㏈) + Cable loss (㏈) - amplifier (㏈)

1.9. Test report revision

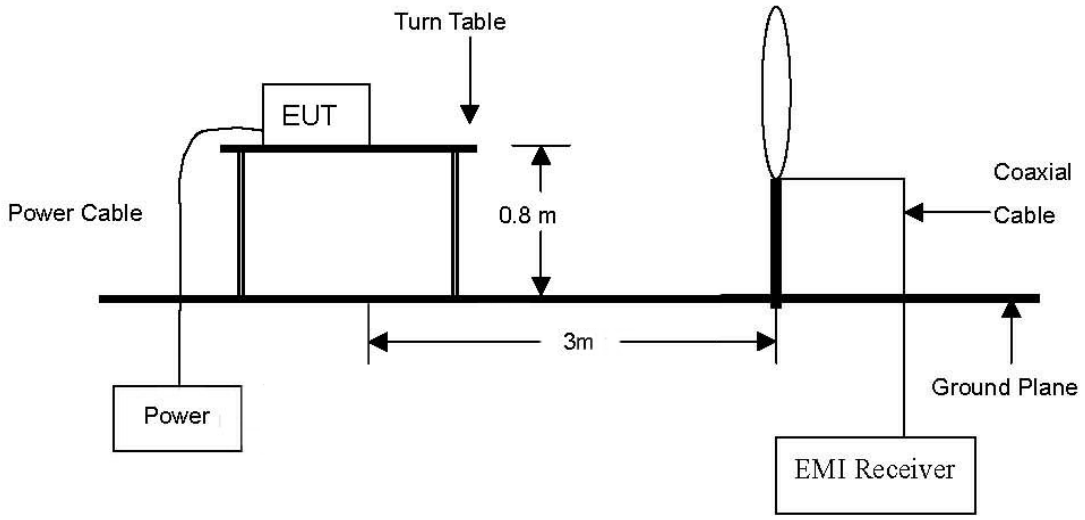
Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL007789	2014.07.02	Initial

2. Transmitter Radiated Spurious Emissions and Conducted Spurious Emission

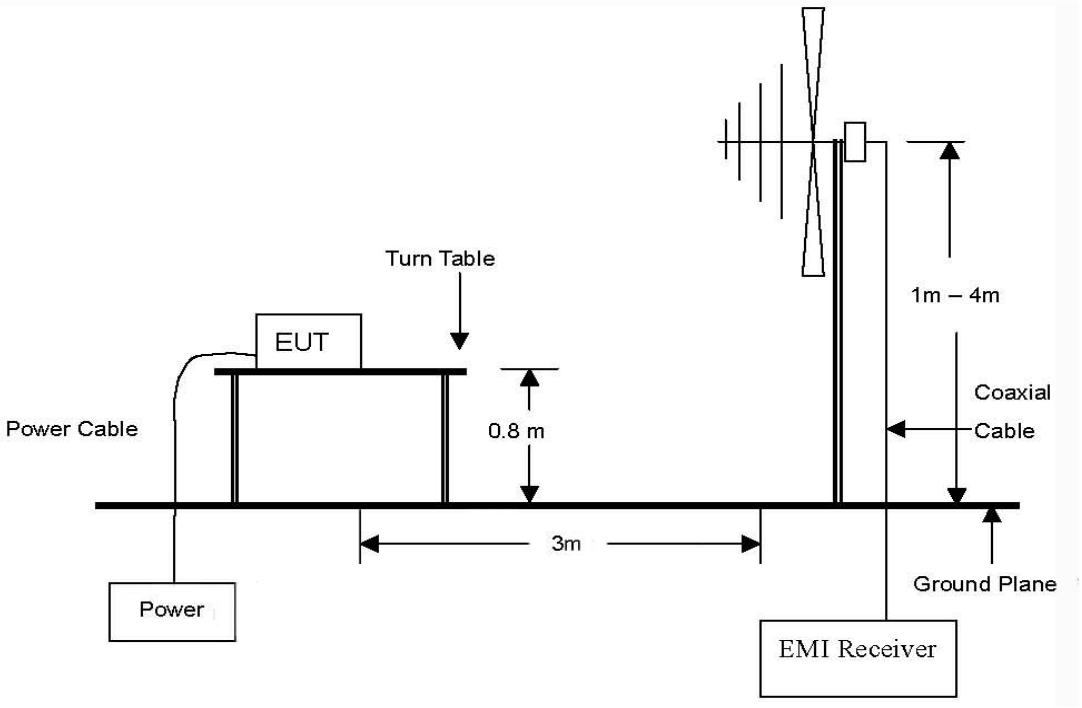
2.1. Test Setup

2.1.1. Transmitter Radiated Spurious Emissions

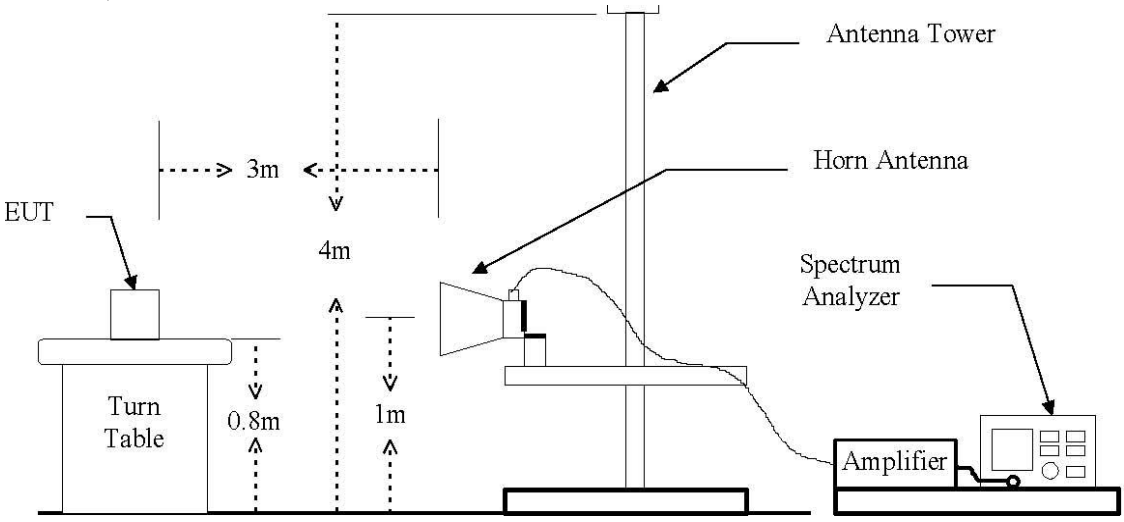
The diagram below shows the test setup that is utilized to make the measurements for emission from below 30 ㎒ Emissions.



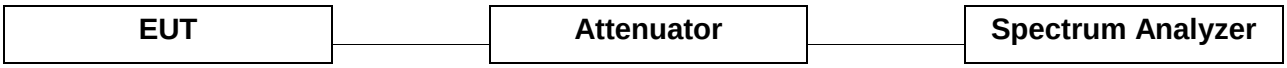
The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission. The spurious emissions were investigated form 1 ㎓ to the 10th harmonic of the highest fundamental frequency or 40 ㎓, whichever is lower.



2.1.2. Conducted Spurious Emissions



2.2. Limit

According to §15.247(d), in any 100 ㎑ bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 ㏈ below that in the 100 ㎑ bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement , provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval , as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 ㏈ instead of 20 ㏈. Attenuation below the general limits specified in section §15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section §15.205(a), must also comply the radiated emission limits specified in section §15.209(a) (see section §15.205(c))

According to § 15.209(a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table：

Frequency (㎒)	Field Strength (microvolts/meter)	Measurement Distance (meter)
0.009 – 0.490	2400/F(㎑)	300
0.490 – 1.705	24000/F(㎑)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 – 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 ㎒, 76-88 ㎒, 174-216 ㎒ or 470-806 ㎒. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241

2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates in section 11.0 & 12.0 of KDB 558074_v03r02

2.3.1. Test Procedures for Radiated Spurious Emissions

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 ㎓, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 ㎓, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 ㏈ lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 ㏈ margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE;

All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

1. Unwanted Emissions into Non-Restricted Frequency Bands
 - The Reference Level Measurement refer to section 11.2
 Set analyzer center frequency to DTS channel center frequency, SPAN ≥ 1.5 times the DTS channel bandwidth, the RBW = 100 ㎑ and VBW ≥ 3 x RBW, Detector = Peak, Sweep time = Auto couple, Trace = Max hold

 - Unwanted Emissions Level Measurement refer to section 11.3
 Set the center frequency and span to encompass frequency range to be measured, the RBW = 100 ㎑ and VBW ≥ 3 x RBW, Detector = Peak, Ensure that the number of measurement points ≥span/RBW, Sweep time = Auto couple, Trace = Max hold

2. Unwanted Emissions into Restricted Frequency Bands
 - Peak Power measurement procedure refer to section 12.2.4
 Set RBW = 1 ㎒, VBW ≥ 3 x RBW, SPAN ≥ RBW, Detector = Peak, Sweep time = Auto couple, Trace = Max hold

 -Average Power measurements procedure refer to section 12.2.5.2
 The EUT shall be configured to operate at the maximum achievable duty cycle. Measure the duty cycle x, RBW = 1 ㎒, VBW ≥ 3 x RBW, Detector = RMS, if span/(# of points in sweep) ≤(RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied then the detector mode shall be set to peak, Averaging type = power(i.e., RMS). 1) As an alternative the detector and averaging type may be set for linear voltage averaging.

Some instruments require linear display mode in order to use linear voltage averaging. Log or ㏈ averaging shall not be used. Sweep time = auto, Perform a trace average of at least 100 traces.
 A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

 1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is 10log(1/x), where x is the duty cycle.
 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is 20log(1/x), where x is the duty cycle.
 3) If a specific emission is demonstrated to be continuous (≥98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

3. To get a maximum emission level from the EUT, the EUT is manipulated through three orthogonal planes.

2.3.2. Test Procedures for Conducted Spurious Emissions

Per the guidance of KDB 558074_v03r02, section 11.1 & 11.2, the reference level for out of band emissions is established from the plots of this section since the band edge emissions are measured with a RBW of 100 ㎑. This reference level is then used as the limit in subsequent plots for out of band spurious emissions shown in section 2.4.3. The limit for out of band spurious emission at the band edge is 20 ㏈ or 30 ㏈ below the fundamental emission level measured in a 100 ㎑ bandwidth.

2.4. Test Results

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

2.4.1. Spurious Radiated Emission (Worst case configuration_GFSK, Middle channel)

The frequency spectrum from 32.768 ㎑ to 1 000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈. All reading values are peak values.

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP + CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
76.08	40.63	Peak	H	9.71	-26.64	23.70	40.00	16.30
82.14	53.18	Peak	V	10.18	-26.56	36.80	40.00	3.20
189.73	49.84	Peak	V	11.02	-25.36	35.50	43.50	8.00
152.06	51.76	Peak	H	8.12	-25.78	34.10	43.50	9.40
246.19	48.59	Peak	V	13.32	-25.01	36.90	46.00	9.10
246.19	45.51	Peak	H	13.70	-25.01	34.20	46.00	11.80

Remark:

1. Actual = Reading + AF + AMP + CL
2. The device has a reference clock operating 32.768 ㎑.

2.4.2. Spurious Radiated Emission

The frequency spectrum above 1 000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈.

Operating Mode: GFSK(1 Mbps)

A. Low Channel (2 402 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*2 310.00	23.48	Peak	V	27.77	6.48	57.73	74.00	16.27
*2 310.00	14.50	Average	V	27.77	6.48	48.75	54.00	5.25
*2 383.52	26.33	Peak	V	28.13	6.50	60.96	74.00	13.04
*2 383.52	14.79	Average	V	28.13	6.50	49.42	54.00	4.58
*2 390.00	24.21	Peak	V	28.08	6.47	58.76	74.00	15.24
*2 390.00	14.89	Average	V	28.08	6.47	49.44	54.00	4.56

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP+CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*4 798.55	55.16	Peak	H	32.56	-33.66	54.06	74.00	19.94
*4 798.55	50.99	Average	H	32.56	-33.66	49.89	54.00	4.11
Above 4 800.00	Not detected	-	-	-	-	-	-	-

B. Middle Channel (2 440 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 883.10	55.13	Peak	H	33.02	-33.46	54.69	74.00	19.31
*4 883.10	51.87	Average	H	33.02	-33.46	51.43	54.00	2.57
Above 4 900.00	Not detected	-	-	-	-	-	-	-

C. High Channel (2 480 ㎒)

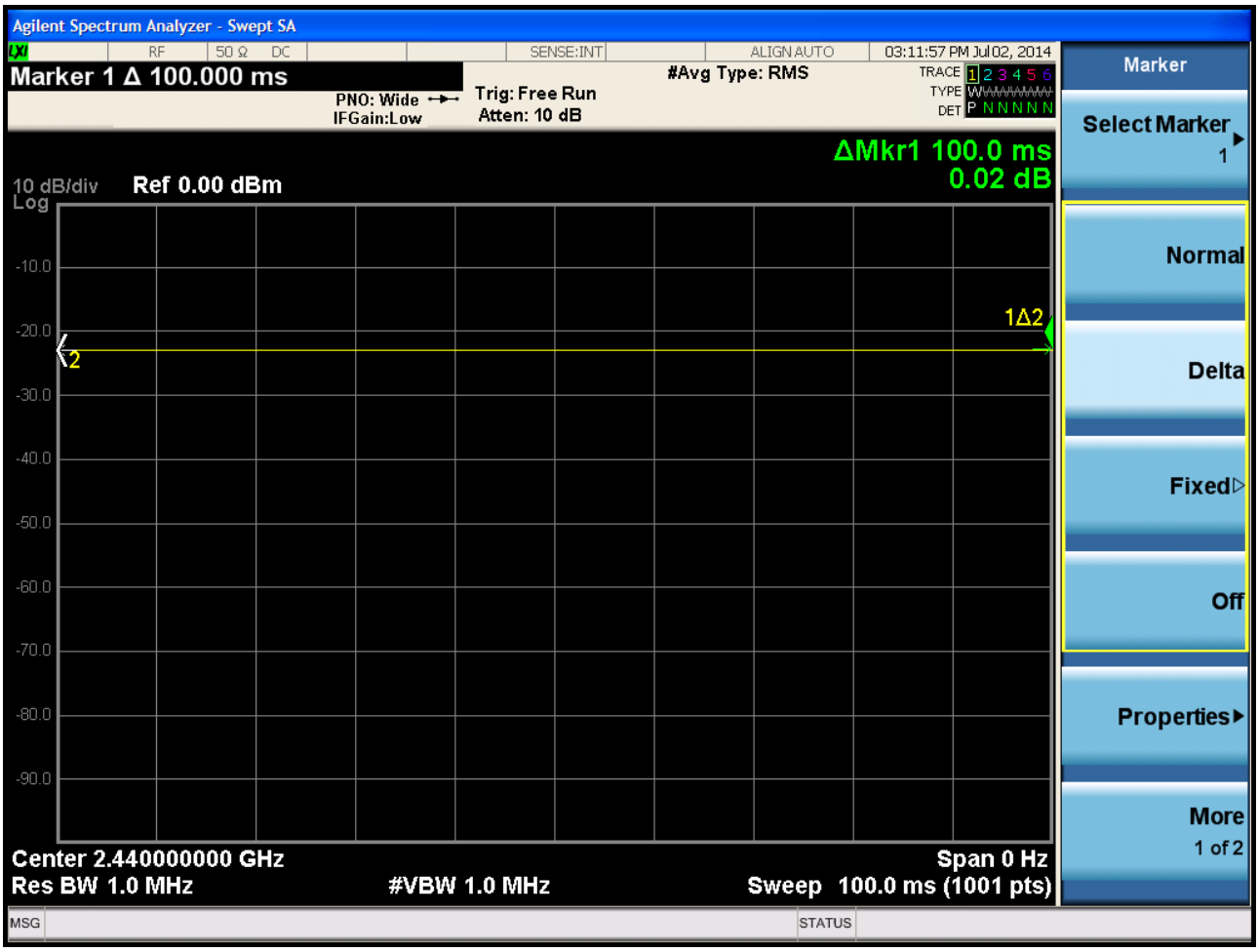
Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	25.04	Peak	V	28.17	6.65	59.86	74.00	14.14
*2 483.50	15.45	Average	V	28.17	6.65	50.27	54.00	3.73
*2 491.52	27.77	Peak	V	28.25	6.76	62.78	74.00	11.22
*2 491.52	15.09	Average	V	28.25	6.76	50.10	54.00	3.90
*2 500.00	25.71	Peak	V	28.31	6.88	60.90	74.00	13.10
*2 500.00	15.16	Average	V	28.31	6.88	50.35	54.00	3.65

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 957.70	53.05	Peak	H	33.16	-33.34	52.87	74.00	21.13
*4 957.70	49.24	Average	H	33.16	-33.34	49.06	54.00	4.94
Above 5 000.00	Not detected	-	-	-	-	-	-	-

Remarks;

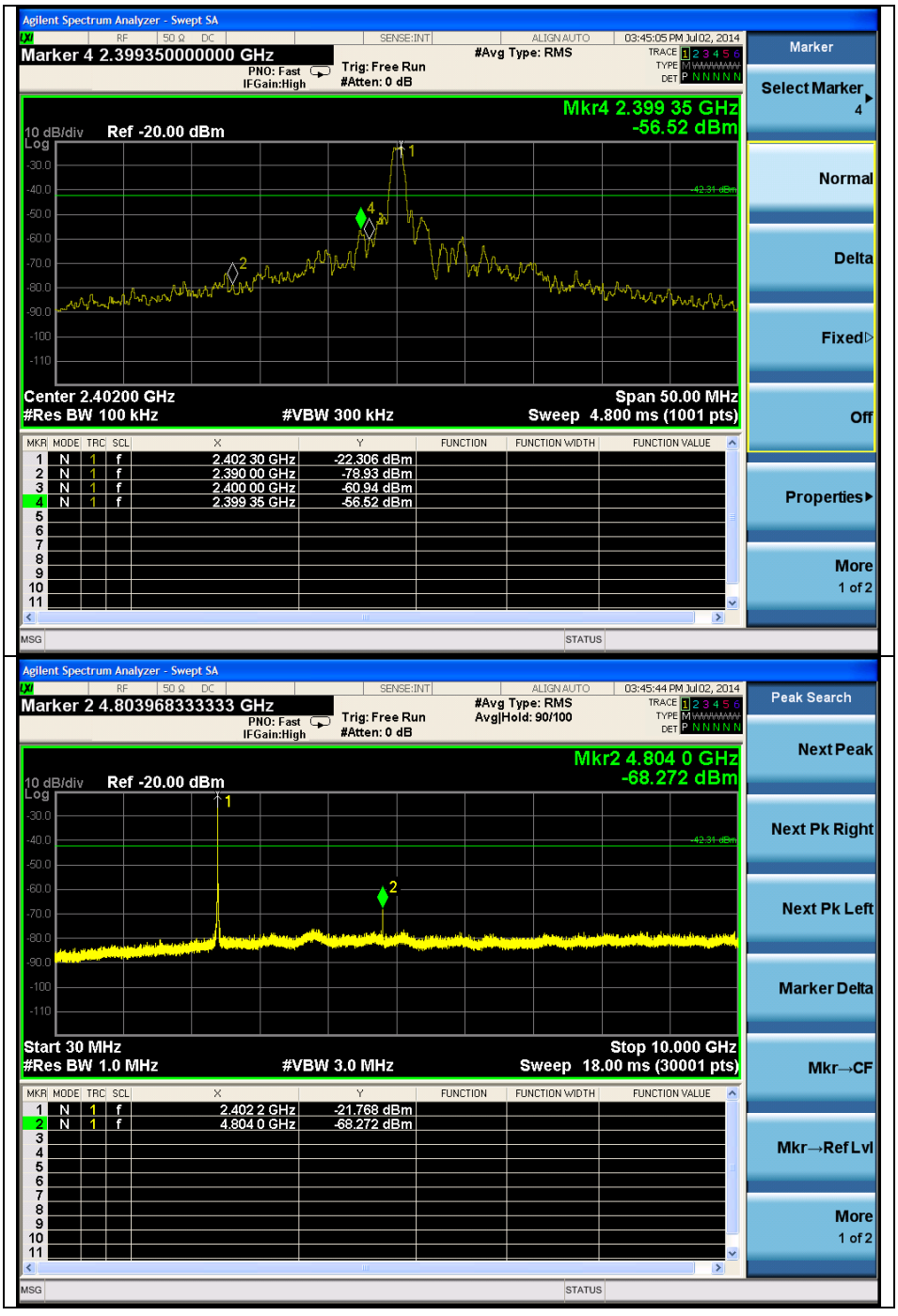
1. "*" means the restricted band.
2. Measuring frequencies from 1 ㎓ to the 10th harmonic of highest fundamental Frequency.
3. Radiated emissions measured in frequency above 1 000 ㎒ were made with an instrument using peak/average detector mode.
4. Actual = Reading + AF + AMP + CL
5. Duty cycle (x) = Tx(on) / Tx(on+off) = 1

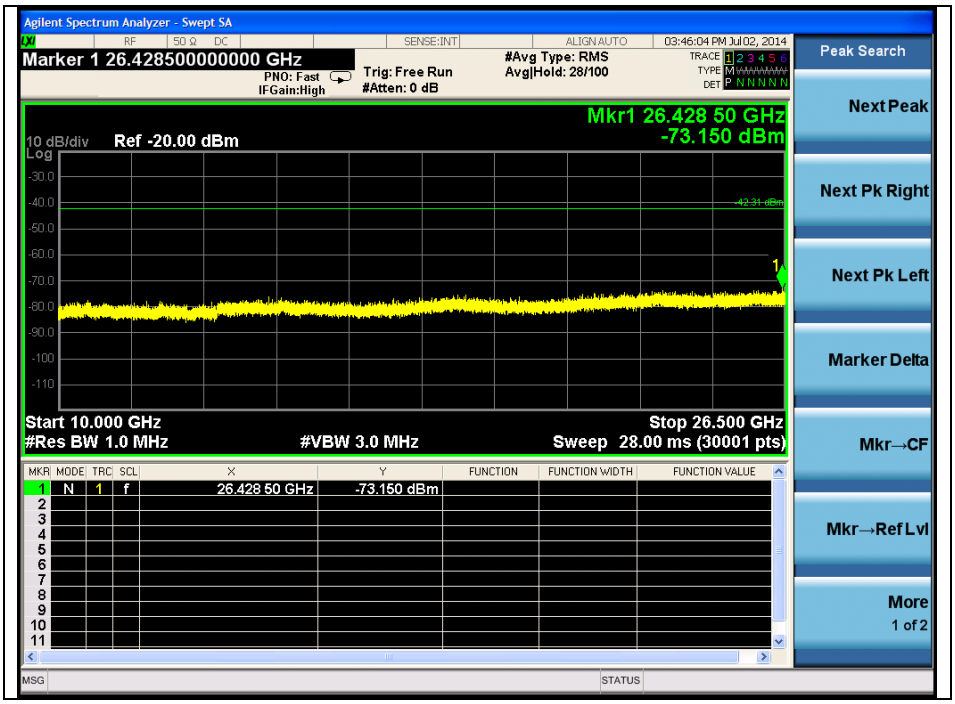
Duty cycle



2.4.3. Spurious RF Conducted Emissions: Plot of Spurious RF Conducted Emission
Operating Mode: GFSK(1 Mbps)

Low Channel

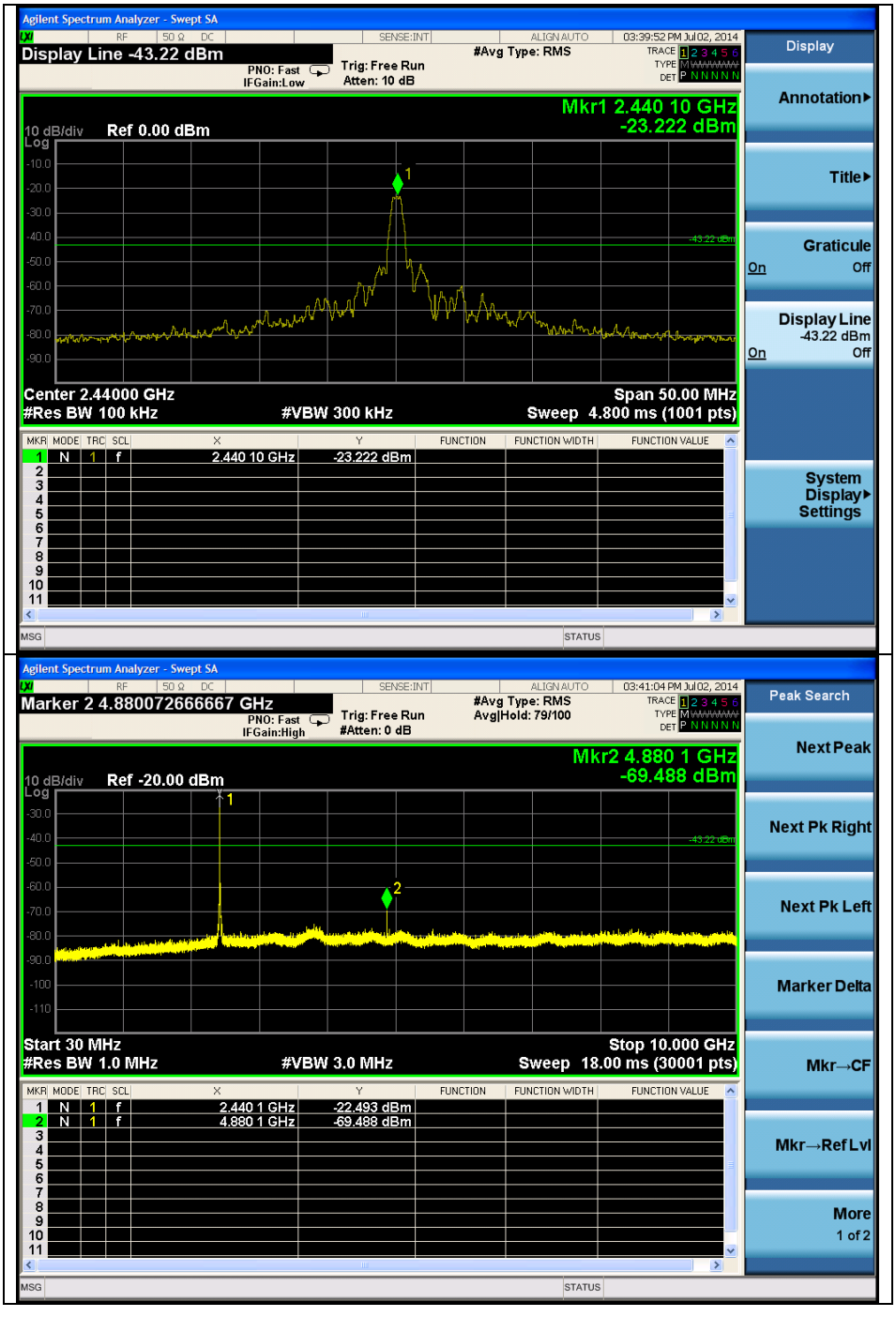


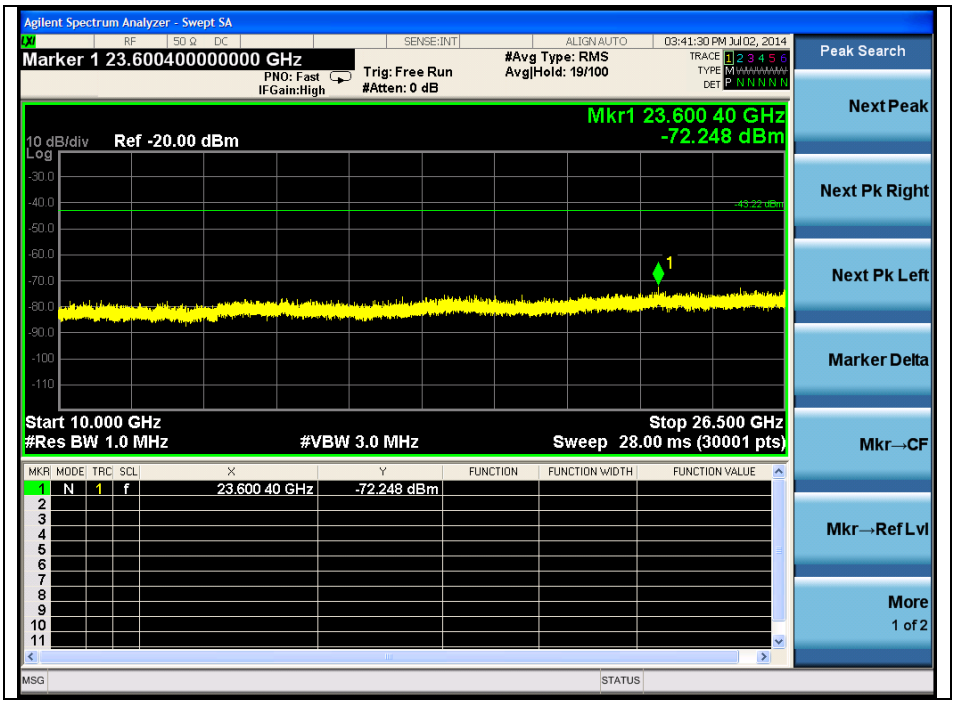


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
2 390.00	-78.93	21.37	-57.56
2 399.35	-56.52	21.39	-35.13
2 400.00	-60.94	21.39	-39.55
4 804.00	-68.27	22.82	-45.45
26 428.50	Noise floor	-	-

Middle Channel

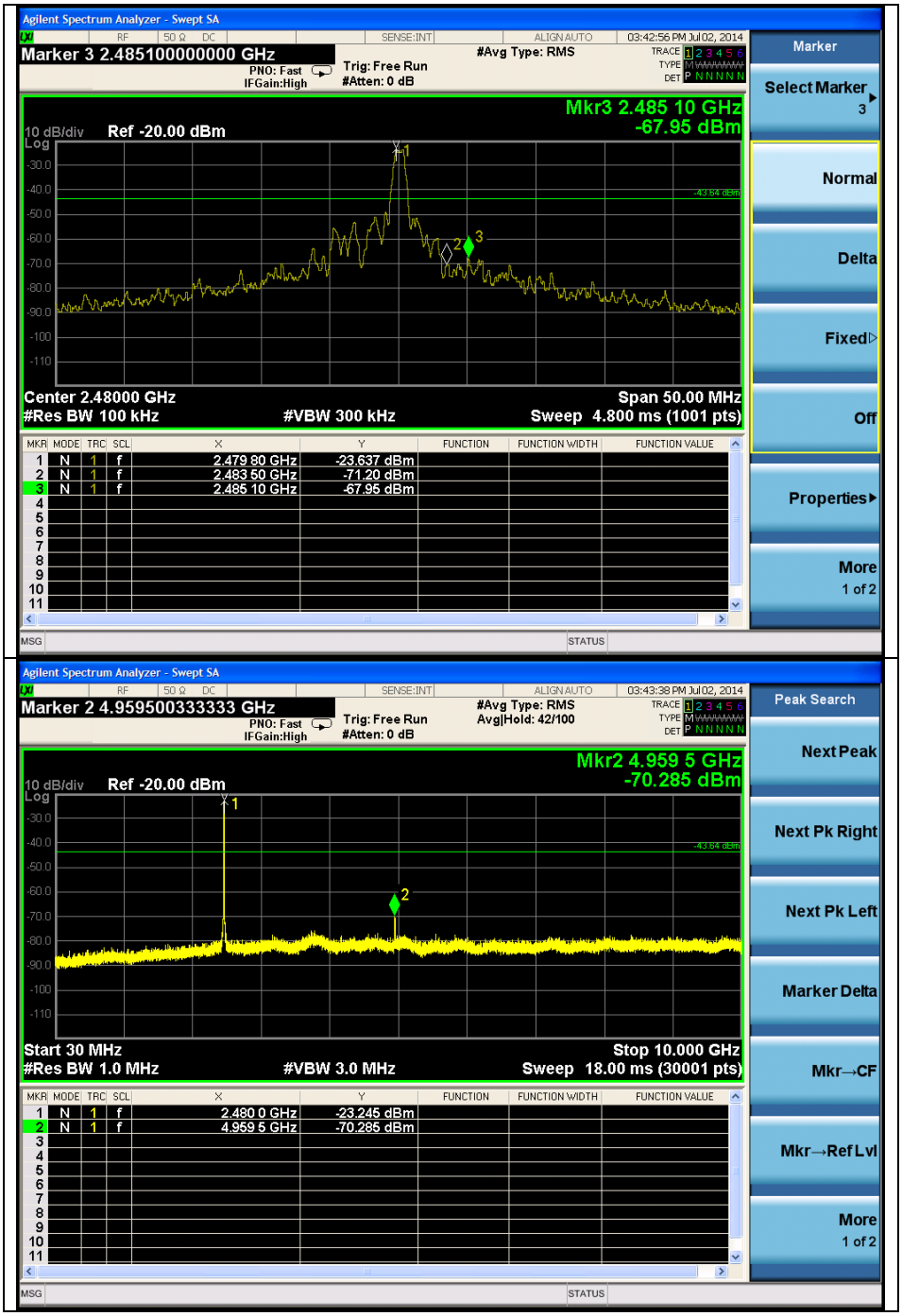


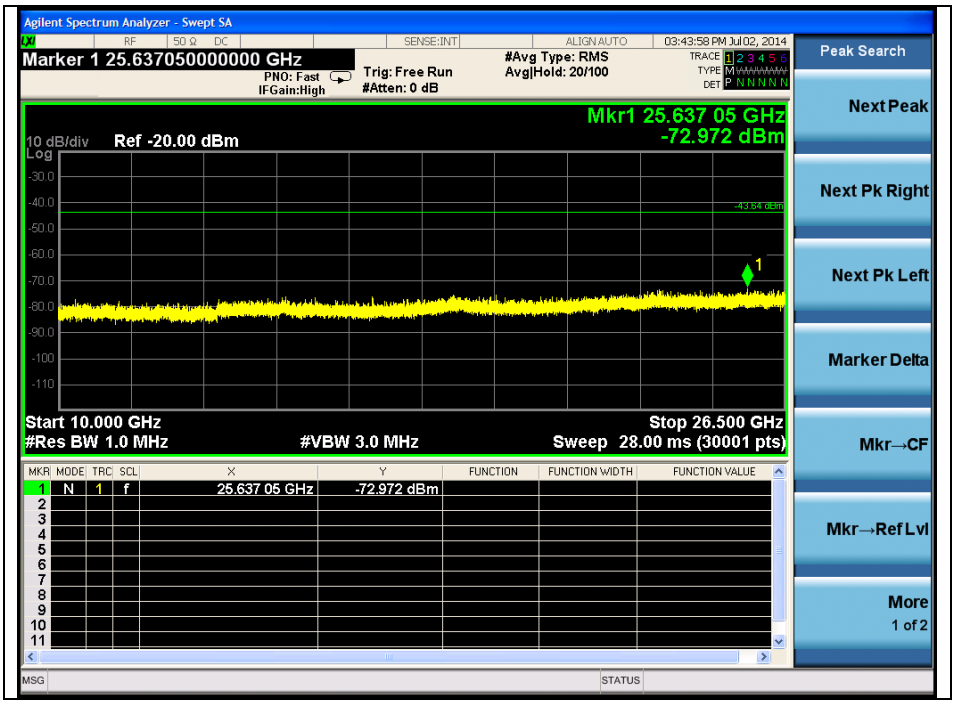


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
4 880.10	-69.49	22.92	-46.57
23 600.40	Noise floor	-	-

High Channel



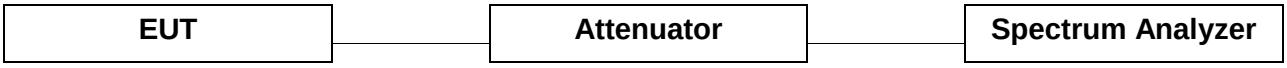


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
2 483.50	-71.20	21.43	-49.77
2 485.10	-67.95	21.45	-46.50
4 959.50	-70.29	23.23	-47.06
25 510.50	Noise floor	-	-

3. 6 dB Bandwidth Measurement

3.1. Test Setup



3.2. Limit

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 ~928 ㎒, 2 400 ~ 2 483.5 ㎒, and 5 725 ~ 5 825 ㎒ bands. The minimum of 6 dB Bandwidth shall be at least 500 ㎑

3.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

The test follows section 8.0 of FCC KDB Publication 558074_v03r02
Tests performed using section 8.2 Option 2

- Option 2:
The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

3.4. Test Results

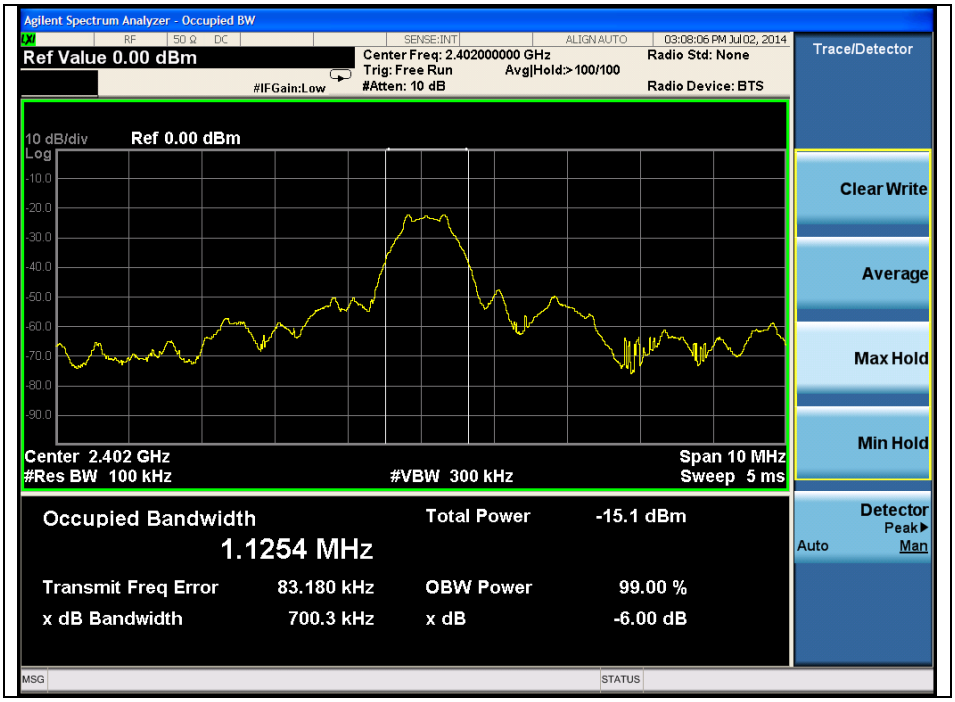
Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Operation Mode	Channel	Channel Frequency (㎒)	Data Rate (Mbps)	6 ㏈ Bandwidth (㎒)	Minimum Limit (㎒)
GFSK	Low	2 402	1	0.700	0.5
	Middle	2 440	1	0.696	
	High	2 480	1	0.682	

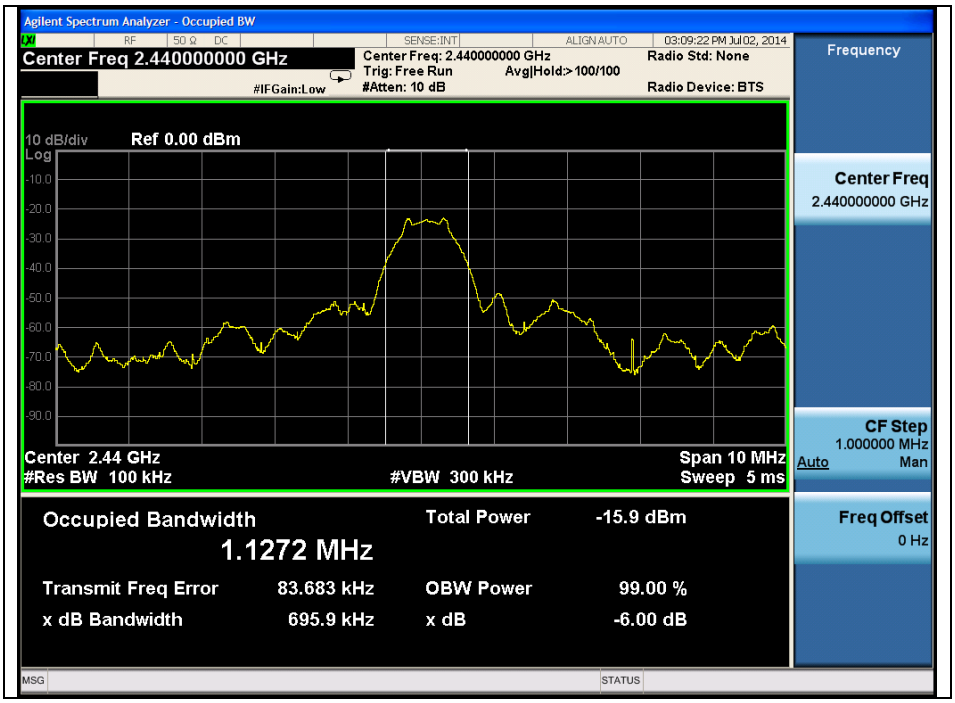
6 dB Bandwidth

Operating Mode: GFSK

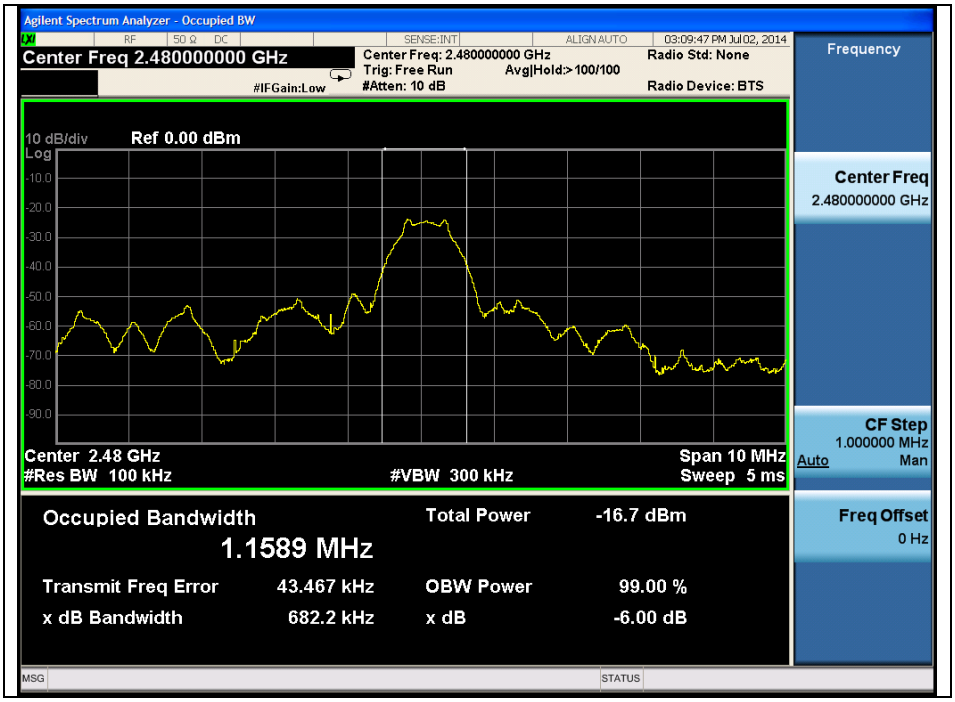
Low Channel



Middle Channel

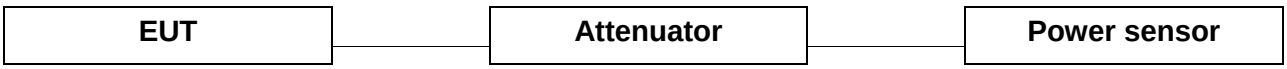


High Channel



4. Maximum Peak Output Power Measurement

4.1. Test Setup



4.2. Limit

According to §15.247(b)(3), for systems using digital modulation in the 902 ~ 928 ㎒, 2 400 ~2 483.5 ㎒, and 5 725 ~ 5 850 ㎒ band: 1 Watt. As an alternative to a peak power measurement, compliance with the one watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antenna elements. The average must not include any intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
According to §15.247(b)(4), the conducted output power limit specified in paragraph(b) of this section is based on the use of antenna with directional gains that do not exceed 6 ㏈i. Except as shown in paragraph(c) of this section, if transmitting antenna of directional gain greater than 6 ㏈i are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i.

4.3. Test Procedure

The test follows section 9.1.2 & 9.2.3 of FCC KDB Publication 558074_v03r02

- Peak power meter method

-The maximum peak conducted output power can be measured using a broad band peak RF power meter. The power meter must have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast, average-responding diode type detector.

- Average power meter method

- Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

1) The EUT is configured to transmit continuously, of to transmit with a constant duty factor.
2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal as described in Section 6.0 of KDB 558074_v03r02.

Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

Adjust the measurement in dB m by adding 10 log(1/x), where x is the duty cycle to the measurement result.

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the broadband power meter and power sensor. The power sensor employs a VBW = 30 ㎒ which is greater than the DTS bandwidth
3. Measure peak & average power each channel.

4.4. Test Results

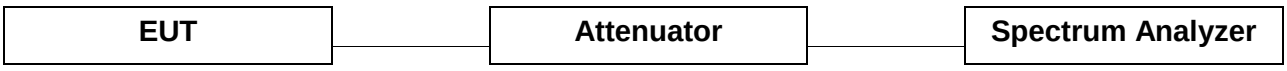
Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Mode	Channel	Channel Frequency (㎒)	Data Rate (Mbps)	Attenuator + Cable offset (㏈)	Average power Result (㏈m)	Peak Power Result (㏈m)
GFSK	Low	2 402	1	21.33	-0.23	-0.18
	Middle	2 440	1	21.31	-1.05	-1.01
	High	2 480	1	21.36	-1.76	-1.73

Remarks;
- Refer to page14 that Duty cycle (x), duty correction factor is 0 (=10 log(1/1)) for average power.

5. Power Spectral Density measurement

5.1. Test Setup



5.2. Limit

§15.247(e) For digitally modulated system, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 ㏈ m in any 3 ㎑ band any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

5.3. Test Procedure

The measurements are recorded using the PKPSD measurement procedure in section 10.2 of KDB 558074_v03r02.

- This procedure shall be used of maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

1. Set instrument center frequency to DTS channel center frequency.
2. Set span to at least 1.5 times the DTS bandwidth.
3. Set RBW to: 3 ㎑ ≤ RBW ≤ 100 ㎑.
4. Set VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 ㎑) and repeat

5.4. Test Results

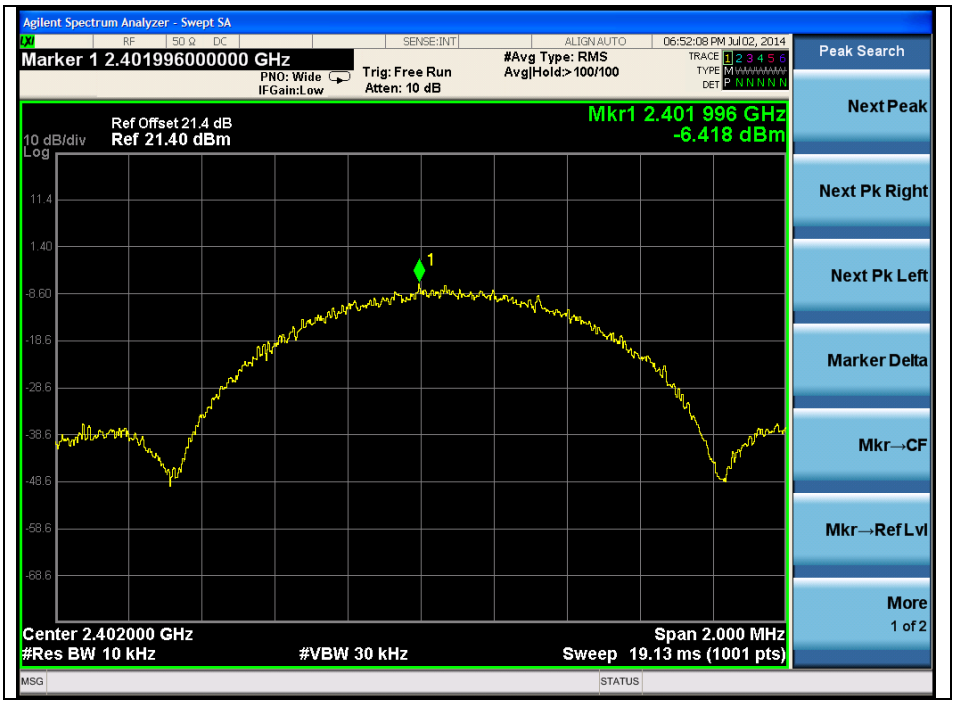
Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Mode	Channel	Frequency	Data Rate (Mbps)	Measured PSD (dB m)	Maximum Limit (dB m)
GFSK	Low	2 402 ㎒	1	-6.418	8
	Middle	2 440 ㎒	1	-7.809	8
	High	2 480 ㎒	1	-8.936	8

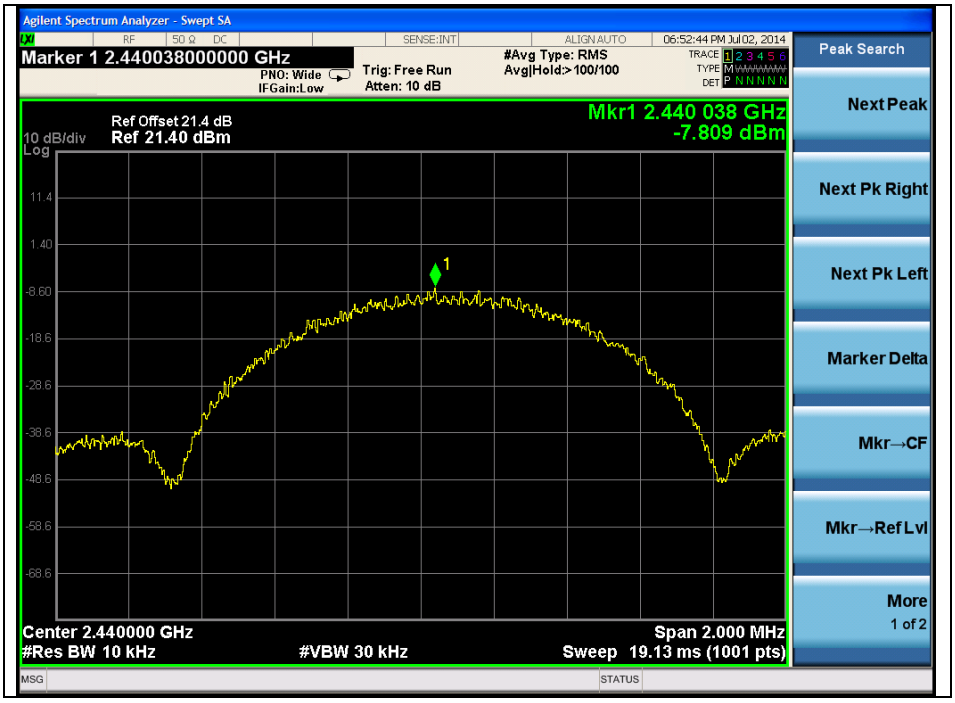
Power spectral density measurement

Operating Mode: GFSK

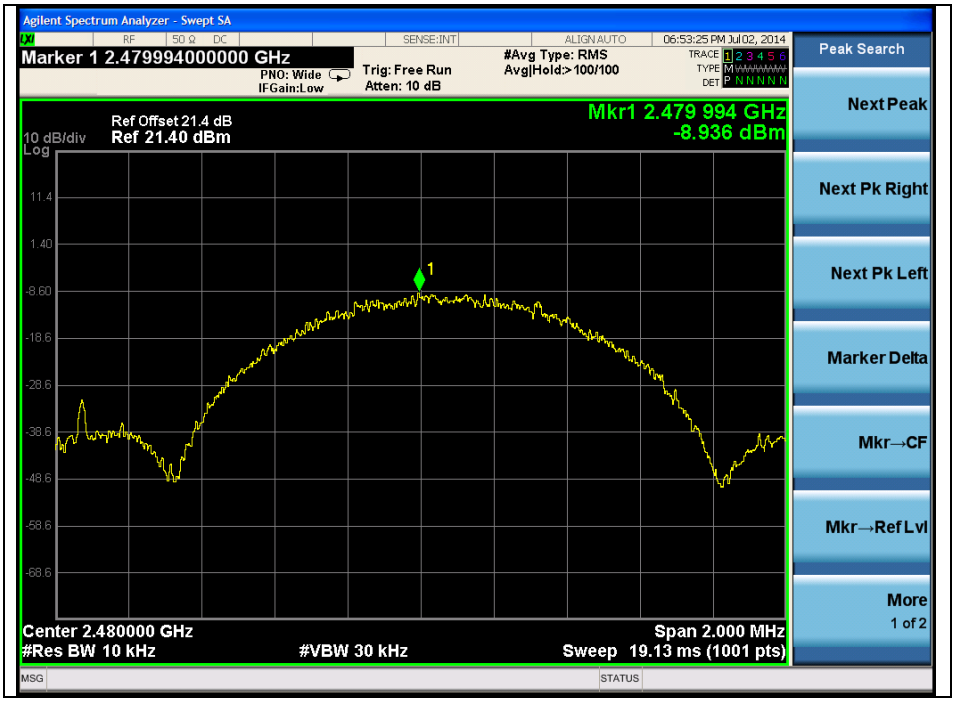
Low Channel



Middle Channel



High Channel



6. Antenna Requirement

6.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section §15.247 (b) if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

6.2. Antenna Connected Construction

Antenna used in this product is Pattern Antenna type with gain of -5.35 dBi.